泰莱微波
Talent Microwave

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# Frequency Conversion Componment

## RF:27-31.5GHz/IF:950-2450MHz/Gain:50dB  Model: TLLNB27G31.5G-50-3

The TLLNB27G31.5G-50-3 is a frequency conversion component operating in the Ka-band. It features an integrated local oscillator, with input RF frequency of 27~31.5 GHz and output IF frequency of 950~2450 MHz. Providing a conversion gain of 50 dB, it also supports adaptive switching between internal and external references.

## Features:

- RF Frequency range: 27-31.5GHz
- IF Frequency range: 950-2450MHz
- Gain: 50dB
- External/Internal Reference Adaptive

## Applications:

- Test Lab
- Instrumentations
- Auto Test Set

## 电气特性 Electrical Characteristics:

| 参数 Parameter | 指标 Value | 单位 Units | 描述 Description |
|---|---|---|---|
| RF输入频率 RF Input Frequency | 27-28.5 | GHz | 26.05GHz@LO |
| | 28-29.5 | | 27.05GHz@LO |
| | 29-30.5 | | 28.05GHz@LO |
| | 30-31.5 | | 29.05GHz@LO |
| IF输出频率 IF Output Freqency | 950-2450 | MHz | |
| 增益 Gain | ≥50 | dB | |
| 增益控制步进 Gain Control Step | 0.5 | dB | Maximum Attenuation Range of 31.5 dB |
| 平坦度 Flatness | ≤±2 | dB | |
| 噪声 Noise Figure | ≤3 | dB | |
| 相位噪声 Phase Noise | ≤-80@1KHz | dBc/Hz | |
| | ≤-85@10KHz | | |
| | ≤-95@100KHz | | |
| | ≤-100@1MHz | | |
| 镜频抑制 Image Rejection | ≥40 | dBc | |
| 杂散 Spurious @IF out | ≥60 | dBc | |
| 群时延 Group Delay | ≤±2 @100 MHz BW | ns | |
| 线性输出功率 Output P1dB | ≥15 | dBm | |

## 电气特性 Electrical Characteristics:

| 参数 Parameter | 指标 Value | 单位 Units | 描述 Description |
|---|---|---|---|
| 本振参考模式 LO Reference Mode | External/Internal Reference Adaptive | | External reference with fallback to Internal Refence |
| 本振外部参考 External LO Reference | ≥5 | dBm | Sine wave, 100MHz |
| 输出参考时钟 Output Reference Clock | 100 | MHz | Output Level: ≥+10dBm |
| 驻波 VSWR | ≤2 | :1 | |
| 直流电压 DC Supply Voltage | +12 | V | |
| 防护等级 Ingress Protection Grade | IP67 | | |

## 机械特性 Mechanical Specifications:

| 参数 Parameter | 指标 Value | 描述 Description |
|---|---|---|
| 操作温度 Operating Temperature | -30~+65℃ | ℃ |
| 输入/输出接口 Input/Output Connector | WR28/N Female | |
| 远控接口 Remote Control Connector | M8 Female, 4 pin<br>1 = NC<br>2 = A pos+ RS485<br>3 = B neg- RS485<br>4 = Common (GND) | 1、LO Frequency Setting<br>2、Digital Attenuator Setting<br>3、Internal/External Reference Status Query<br>4、PLL Lock Status Monitoring<br>5、DC Power Supply Status Monitoring |
| 通信接口 Communication Conneector | RS485 | |
| 直流供电接口 DC supply Interface | SMA | +12 V |
| 参考输出接口<br>Reference Output Reference Interface | SMA | 100MHz |
| 外部参考输入接口<br>External Reference Input Interface | SMA | 100MHz |

**Note：** The PLL frequency and the Digital Attenuator attenuation will be done by writing a number in the relevant register as per the communication protocol.

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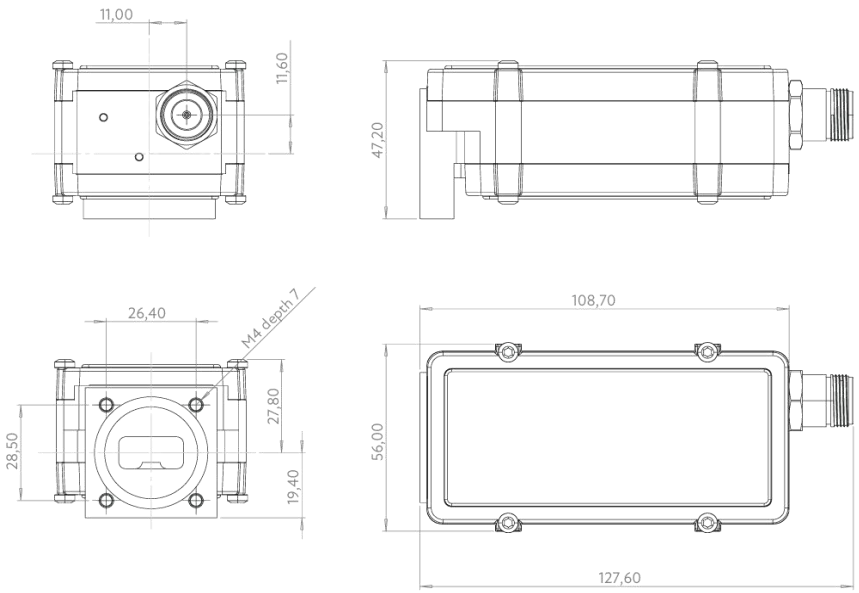
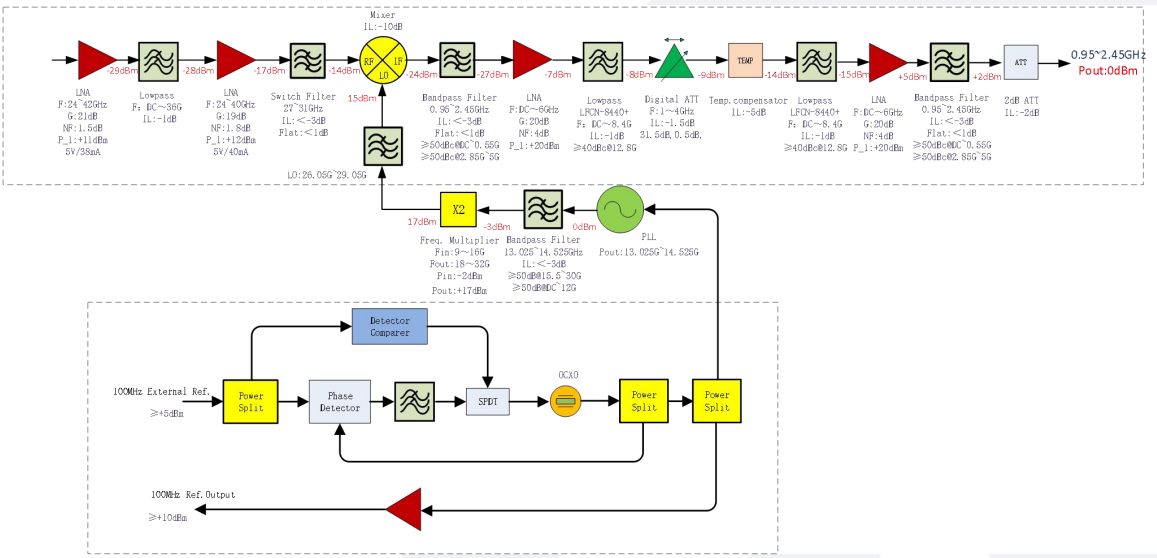
## 外形图 Outline Drawing:

Unit:mm




## 原理框图 Functional Block Diagram:




## 订货信息 Ordering Information:

| 标准型号 Base Number | 描述 Description | 版本号 Revision |
|---|---|---|
| TLLNB27G31.5G-50-3 | Frequency Conversion Component,<br>RF frequency; 27~31.5 GHz,Gain: 50dB | Rev.1.1 |

**Notes:**

1. Dimensions and specifications may be changed without prior notice.
2. Standard Warranty: three years.